

Sampling Oversight Plan for:

**REMEDIAL INVESTIGATION
FOR OPERABLE UNIT 3
LIBBY ASBESTOS SUPERFUND SITE**

**PHASE IV SAMPLING AND ANALYSIS PLAN
PART A – DATA TO SUPPORT
HUMAN HEALTH RISK ASSESSMENT**

***Prepared by
HDR Engineering, Inc.***



HDR Engineering, Inc.

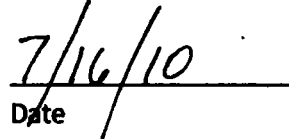
APPROVAL PAGE

This Phase IV Part A Sampling Oversight Plan for Operable Unit 3 of the Libby Asbestos Superfund Site is approved for implementation.

A handwritten signature in black ink, appearing to read "Bonita Layelle", written over a horizontal line.

Bonita Layelle

Remedial Project Manager, Libby OU3

A handwritten date "7/16/10" in black ink, written over a horizontal line.

Date

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Acronyms

| | |
|-------------|--|
| ABS | Activity Based Sampling |
| COC | Chain of Custody |
| EPA | United States Environmental Protection Agency |
| FSDS | Field Sample Data Sheet |
| GPS | Global Positioning System |
| HASP | Health and Safety Plan |
| LA | Libby Amphibole |
| MWH | MWH Americas, Inc. |
| OSP | Oversight Plan |
| OU3 | Operable Unit 3 |
| QC | Quality Control |
| SAP | Sampling and Analysis Plan |
| SOP | Standard Operating Procedure |
| USFS | United States Forest Service |

1.0 PROJECT OVERVIEW

1.1 Purpose of this Document

This document is the Sampling Oversight Plan (OSP) for the Sampling and Analysis Plan for Phase IV Part A (Phase IV-A SAP) of the Remedial Investigation for Operable Unit 3 (OU3) of the Libby Asbestos Superfund Site (site). This OSP contains the elements required to oversee the Phase IV-A SAP as presented in *Remedial Investigation for Operable Unit 3 Libby Asbestos Superfund Site Phase IV Sampling and Analysis Plan for Phase IV Part A - Data to Support Human Health Risk Assessment* prepared by EPA (U.S. Environmental Protection Agency) and SRC, Inc. The OSP is organized as follows:

- Section 1 – Project Overview
- Section 2 – Background and Problem Definition
- Section 3 – Oversight Program
- Section 4 – Sample Observation
- Section 5 – Documentation Observation
- Section 6 – Quality Control Observation
- Section 7 – Reporting
- Section 8 – References

1.2 Project Management and Organization

Project management and organization for this project will follow the layout described in the Phase IV-A SAP.

Technical Support

HDR's role is to provide oversight of field sampling and data collection activities and report the results to the EPA. To accomplish this task, HDR will provide limited oversight of the field sampling activities performed by W.R. Grace & Co.-Conn. and Kootenai Development Corporation and their sampling consultant, MWH Americas, Inc. (MWH) and subcontractor, Chapman Construction, Inc.

2.0 BACKGROUND AND PROBLEM DEFINITION

2.1 Site Description

Libby is a community in northwestern Montana that is located near a former large open-pit vermiculite mine. Vermiculite from the Libby mine is known to be contaminated with amphibole asbestos. For the purposes of EPA investigations at the Libby Asbestos Superfund Site, this mixture is referred to as Libby Amphibole (LA). A vicinity map is presented in Figure 2-1. Additional description of the site is presented in the Phase IV-A SAP.

2.2 Scope of the Phase IV-A OSP

This OSP describes the oversight efforts that will be performed to verify sampling procedures are performed in accordance with the Phase IV-A SAP. Sampling oversight will consist of observing sampling, field reporting, and shipping procedures outlined in the Phase IV-A SAP.

Adherence to and deviations from these procedures outlined in the Phase IV-A SAP will be noted and reported to EPA to assist EPA in developing a conceptual site model for human exposure to LA for activities at or near the site. This OSP will also help the EPA to achieve the stated data quality objectives of the Phase IV-A SAP.

The oversight efforts required for the ecological risk assessment, Phase IV Part B, will be developed once Part B of the Phase IV SAP is available.

3.0 OVERSIGHT PROGRAM

The Phase IV-A activity based sampling (ABS) design is presented in the Phase IV-A SAP. This OSP outlines procedures to observe and document sample procedures conducted by MWH or Chapman Construction. HDR will report any deviations from the Phase IV-A SAP to the EPA.

3.1 Oversight Strategy

The oversight strategy has been developed based on the Phase IV-A SAP requirements, HDR's scope of work and subsequent conversations with EPA. The oversight strategy includes the following:

- Observe at least one sampling event for each ABS scenario
- Conduct oversight during one of the first sampling events for each ABS scenario to identify potential problems or deviations
- Conduct follow-up oversight, when possible, to verify inconsistencies were rectified
- Audit all phases of script activities including: pump calibration, sample location, sampling method, field decontamination, sample documentation and handling, and quality control procedures.

3.2 ABS Scripts

EPA utilizes scripts to describe and detail activities to be performed by individuals performing ABS scenarios presented in Attachment A of the Phase IV-A SAP. Scripts, along with the sampling program described in the Phase IV-A SAP, provide a detailed approach including sample location, procedure, duration, etc. and are designed to represent realistic activities that commonly occur or have the potential to occur in the area. ABS samples are intended to represent actual LA exposure data associated with these activities.

The following scripts are included in the Phase IV-A ABS to provide exposure data for the following exposure scenarios:

- Recreation visitor along lower Rainy Creek (Script 1)
- Residential wood harvesters (Script 2)
 - Script 2a – Driving to and from the Harvesting Site
 - Script 2b – Felling, Limbing, Cutting, and Stacking
- United States Forest Service (USFS) employees performing forest management work (Script 3). This script includes the following ABS sampling for the following activities:
 - Script 3a – Trail Maintenance
 - Script 3b – Tree Thinning

- Script 3c – Stand Examination
- USFS employees performing ground-based fire suppression work (Scripts 3 and 4)
 - Script 3d – Cutting a Fireline by Hand
 - Script 3e – Cutting a Fireline with Heavy Equipment
 - Script 4a – Personal Exposure of Ground-Based Firefighters to Smoke
 - Script 4b – Stationary Monitors of Ground-Based Firefighters to Smoke
- USFS employees performing aerial fire suppression work (Script 5)
 - Script 5a – Exposure of Pilots Responding to Simulated Wildfires in OU3
 - Script 5b – Exposure of Pilots Responding to Authentic Wildfires in OU3
- Area residents and campers exposed to forest fires in or around OU3 (Script 6)

Scripts 5b and 6 will be conducted during authentic wildfires which may or may not occur during the Phase IV sampling season.

3.3 Sampling Areas

Sampling areas are defined in the Phase IV-A SAP and are presented in Figure 3-1.

3.4 Sampling Schedule

The sampling oversight schedule will depend on the schedule utilized by MWH. A preliminary schedule is outlined below, though this is subject to change. The preliminary schedule is based on data presented in the Phase IV-A SAP and subsequent correspondence with the EPA.

HDR will observe at least one sampling event for each script, except Scripts 5 and 6. According to the Phase IV-A SAP, five sampling events are scheduled for Scripts 1 through 3. Scripts 4a, 4b, and 5a are scheduled for two simulated wildfire events occurring on a single day. Scripts 5b and 6 are not scheduled and will occur only in the event of an authentic wildfire.

HDR is currently scheduled to oversee approximately eight weeks of sampling oversight during the 2010 sampling season and two weeks during the 2011 sampling season. Of the eight weeks of sampling oversight scheduled for 2010, six of them will likely be spread out among Part A and Part B of the Phase IV oversight. Each week of sampling oversight will generally consist of one day of travel to the site, three days of field oversight, and one return travel day.

Recreational Visitor Along Rainy Creek (Script 1)

According to the Phase IV-A SAP, this event is scheduled to occur five times in a single study area (see Table 5-1 of Part IV-A SAP). This scenario is to be implemented between late July and early September. HDR will target to observe at least one sampling event for this scenario. The

target observation will occur in the beginning sampling rounds, likely in late July or early August.

Residential Wood Harvester (Script 2)

This event will occur at three study areas, with five ABS sampling events in each area (Table 5-1 of Part IV-A SAP). Sampling of this scenario will occur between late July and early September. HDR will target observation of at least one day of sampling per discussions with EPA.

Inconsistencies between the SAP and the sampling procedure will be reported to EPA at the end of the day, and HDR may return to the site for additional observation on the following day. The target observation will occur in the beginning sampling rounds, likely in late July or early August.

USFS Forest Management (Script 3a through 3c)

This event will occur at three study areas, with five ABS sampling events in each area (Table 5-1 of Part IV-A SAP). Sampling of this scenario will occur between June 1 and September 30. HDR will target observation of at least one sampling event for each script. The target observation will occur in the beginning sampling rounds, likely in June or early July.

Fireline Construction (Script 3d and 3e)

This event will occur at three study areas, with five ABS sampling events in each area (Table 5-1 of Part IV-A SAP). Sampling of this scenario will occur between July 1 and September 30. HDR will target observation of at least one sampling event for each script. The target observation will occur in the beginning sampling rounds, likely in July. According to the Phase IV-A SAP, these two scenarios must be conducted prior to performing the simulated wildfire scenario for Scripts 4 and 5a.

Simulated Wildfire (Script 4 and 5a)

This event will occur two times at a single location according to the Phase IV-A SAP. This scenario may only be conducted after sample results have been received for the fireline construction scripts. Controlled burns, simulated wildfires, are typically conducted by the USFS under wet or snowy conditions when the risk of fire spreading is minimal. This script will likely occur in the fall or winter (between October 1, 2010 through March 31, 2011). HDR will observe this single sampling event.

Script 4 occurs at the simulated wildfire site, while Script 5a occurs in a helicopter or airplane on the way to the simulated wildfire site. These scripts will occur simultaneously which makes observation of both events impossible. Based on conversations with EPA, observation of the ground based firefighting scenario is more important and HDR will observe both simulated wildfire events at the fire locations. As scheduling allows, HDR will accompany MWH or other

designated personnel to the airport to oversee pump calibration, sample train setup, and pump availability prior to the sampling event.

Authentic Wildfire (Script 5b and 6)

This event is not a planned event. This event will only occur during an authentic wildfire which may be human or naturally caused. This event may or may not occur in the area within a reasonable time frame. HDR will not plan to oversee this event. If such an event occurs, HDR will provide assistance as directed by EPA. Based on conversations with EPA and as scheduling allows, HDR will accompany MWH or other designated personnel to the airport and stationary monitoring locations to oversee pump calibration, sample train setup, and pump availability to verify measures and equipment are in place prior to an actual event.

3.5 Health and Safety

A formal Health and Safety Plan was developed specifically for HDR employees involved with this project. The Health and Safety Plan addresses the nature of the work, key health and safety personnel, routes to the hospital, and multiple potential hazards. Potential hazards associated with this work include primarily asbestos exposure, but also non-asbestos hazards such as heat and cold stress, biological hazards, dehydration, etc. The Health and Safety Plan is referenced at the end of this document. HDR employees shall be familiar with the HASP and adhere to it while within the OU3 site.

4.0 SAMPLE OBSERVATION

This section describes the approach to be used to perform oversight of the ABS sampling events, particularly the sampler activities during the events. Sampler activities include pump calibration, sample location, sample method, and decontamination.

A checklist, titled Libby OU3 ABS Field Sampling Oversight Checklist, was prepared to assist HDR field personnel and verify that the appropriate data is collected and standard operating procedures (SOPs) are followed. The checklist was developed based on information presented in the Phase IV-A SAP, scripts, and SOP ABS-LIBBY-OU3, which is located in Attachment B of the Phase IV-A SAP. This checklist is presented in Appendix A.

4.1 Pump Calibration

Sample pump calibration is outlined in Section 7.0 of SOP ABS-LIBBY-OU3. The SOP requires each sample pump be calibrated before the start of each air sampling collection event to verify each pump is accurately measuring the flow rate or volume.

Sample pump calibration is performed using a rotameter, and the rotameter is calibrated with a primary flow standard. According to SOP ABS-LIBBY-OU3, calibration of the rotameters with a primary flow standard is specified to occur once at the beginning of the sampling program and quarterly thereafter as needed; however, MWH has indicated that primary calibration will occur more frequently. If HDR is not onsite when calibration occurs, HDR will attempt to verify calibration by reviewing calibration records.

Following rotameter calibration, the rotameter will be transported into the field to verify proper pump flow rates prior to the beginning of each sampling event and recalibrate the pump if necessary. Flow rates will be checked with the rotameter at the end of the sampling event. The flow checks described in Section 7.3 of the SOP, required once every two hours, will not be conducted as the Phase IV-A scripts do not last any longer than 60 minutes.

4.2 Sample Location

The Phase IV-A SAP requires the exact locations of the ABS activities within the ABS areas must vary from event to event. The starting and stopping locations for each ABS sampling activities are to be recorded with a Global Positioning System (GPS) unit. HDR will record the starting and ending points with a separate GPS unit than that used by the samplers.

The Phase IV-A SAP also requires ABS areas to vary from event to event. HDR will not be onsite for completion of all events. To the extent possible, HDR will verify that the sampling locations

are different than previous events. HDR will only verify the starting and ending readings with those of the sample crew.

Due to the single event location and the relatively small study area for ABS sampling detailed in Script 1, sampling of duplicate areas is probable.

4.3 Sample Method

The sampling method will follow that outlined in the Phase IV-A SAP, including the scripts, and SOP ABS-LIBBY-OU3. The subsections below detail HDR's approach to observing the sample method.

General

According to the Phase IV-A SAP, all ABS air samples are to be collected in accord with SOP ABS-LIBBY-OU3. HDR will verify the samplers are utilizing the proper equipment and that the equipment is positioned and operating properly. General oversight will include:

- Properly calibrated pumps – Was the flow verified with a rotameter prior to sampling?
- Proper filter cassettes – 25 millimeter (mm), three-piece, with a 0.8 micrometer (µm) filter
- New filter cassettes are from a box that has undergone Lot Quality Control (QC)
- Filter cassettes are properly labeled prior to beginning sampling
- Proper tubing – Tygon, ¼-inch inner diameter
- Proper pump train setup – pumps pulling air through the filters and filter caps removed
- Proper filter location – located within breathing zone, oriented downward
- Filter cassette covers and end caps stored in a clean location
- Specified number of pumps running
- Documentation – Field Sample Data Sheet (FSDS), log book
- Samplers switch jobs at proper time
- Pumps turned off at the proper time
- Equipment adequately decontaminated to minimize sample cross-contamination
- Personnel decontaminated to minimize sample cross-contamination
- Filter cassettes properly capped and sealed at the end of the event
- Samples properly prepared for shipment – packaged, not stored in pockets, stored upright, secured, chain-of-custody

Script 1

HDR will verify the samplers are utilizing proper technique for this task as outlined in Section 5.0 of the Phase IV-A SAP and Script 1 of Attachment A of the SAP. Oversight for this task will include:

- Verify correct location using Figure 3-1 or other maps/directions
- Verify proper sample time – late July through early September
- Verify proper field conditions – warm dry day, no rain in last 24 hours
- Three pumps worn by each sampler – flow rates set at 1 liter per minute (LPM), 2 LPM and 4 LPM
- Samplers switch positions after 30 minutes
- Samplers cross Rainy Creek several times
- Verify brush disturbed
- Verify stream sediment disturbed
- Pumps turned off after 60 minutes, samples capped, and properly changed out
- Verify sample pump flow rate
- Decon equipment and personnel to minimize sample cross-contamination

Script 2

HDR will verify the samplers are utilizing proper technique for this task as outlined in Section 5.0 of the Phase IV-A SAP and Script 2 of Attachment A. Oversight for this task will include:

- Verify correct location using Figure 3-1 or other maps/directions
- Verify proper sample time – late July through early September
- Verify proper field conditions – warm dry day, no rain in last 24 hours
- Three pumps worn by each sampler – flow rates set at 1 LPM, 2 LPM and 4 LPM
- Pumps activated during drive to the site
- Windows open on the drive to the site
- Pumps stopped and cassettes properly stored upon arrival at the site
- New filter cassettes installed and pumps properly calibrated prior to beginning wood harvest
- Pumps turned on prior to harvesting event
- Record duration of falling/delimbing activity – should be approximately 20 minutes
- Samplers cut and load firewood for 30 minutes switching positions after 15 minutes
- Verify time when sequential sample cassettes are switched during harvesting activity
- Pumps turned off after 50 minutes, samples capped, and properly changed out
- Decon equipment (chainsaw and gloves) to minimize sample cross-contamination
- Decon personnel to minimize sample cross-contamination
- Verify stored sample cassettes reinstalled
- Pumps properly calibrated prior to returning to flyway
- Pumps turned on and windows down on drive back to flyway
- Pumps turned off upon exiting truck, samples capped, and properly changed out
- Verify sample pump flow rate

- Unload firewood
- Decon equipment and personnel to minimize sample cross-contamination

Script 3a through 3d

HDR will verify the samplers are utilizing proper technique for this task as outlined in Section 5.0 of the Phase IV-A SAP and Scripts 3a through 3d of Attachment A. HDR assumes that these four events will be conducted concurrently at each ABS area prior to changing event or area. If these events are not conducted concurrently oversight will need to be adjusted accordingly.

Oversight for this task will include:

- Verify correct location using Figure 3-1 or other maps/directions
- Verify proper sample time – late June 1 through September 30
- Verify proper field conditions – warm dry day, no rain in last 24 hours
- Three pumps worn by each sampler – flow rates set at 1 LPM, 2 LPM and 4 LPM
- Proper equipment utilized for trail maintenance – saw head trimmer
- New filter cassettes installed and pumps properly calibrated prior to beginning trail maintenance
- Pumps turned on after hike to trail maintenance site
- Samplers reverse roles after 15 minutes of activity
- Verify cleared area looks like a passable trail
- Pumps turned off after 30 minutes, samples capped, and properly changed out
- Decon equipment to minimize sample cross-contamination
- Decon personnel to minimize sample cross-contamination
- New filter cassettes installed and pumps properly calibrated prior to beginning tree thinning
- Pumps turned on prior to beginning activity
- Samplers reverse roles after 15 minutes of activity
- Verify trees are thinned and slash stacked
- Pumps turned off after 30 minutes, samples capped, and properly changed out
- Verify sample pump flow rate
- Decon equipment to minimize sample cross-contamination
- Decon personnel to minimize sample cross-contamination
- New filter cassettes installed and pumps properly calibrated prior to beginning tree stand examination
- Pumps turned on prior to beginning activity
- Verify tree measurement methods are appropriate
- Verify tree core collected
- Pumps turned off after 30 minutes, samples capped, and properly changed out

- Verify sample pump flow rate
- Decon equipment to minimize sample cross-contamination
- Decon personnel to minimize sample cross-contamination
- Proper equipment utilized for fire line by hand – chainsaw and Pulaski
- New filter cassettes installed and pumps properly calibrated prior to beginning fire line
- Pumps turned on prior to beginning activity
- Samplers reverse roles after 15 minutes of activity
- Verify cleared is approximately 18 inches wide and down to mineral soil
- Pumps turned off after 30 minutes, samples capped, and properly changed out
- Verify sample pump flow rate
- Decon equipment to minimize sample cross-contamination
- Decon personnel to minimize sample cross-contamination

Script 3e

HDR will verify the samplers are utilizing proper technique for this task as outlined in Section 5.0 of the Phase IV-A SAP and Script 3e of Attachment A. Oversight for this task will include:

- Verify correct location using Figure 3-1 or other maps/directions
- Verify proper sample time – late July 1 through September 30
- Verify proper field conditions – warm dry day, no rain in last 24 hours
- Three pumps worn by each sampler – flow rates set at 1 LPM, 2 LPM and 4 LPM
- New filter cassettes installed and pumps properly calibrated prior to fire line with equipment
- Proper equipment utilized for fire line – dozer or excavator
- Pumps turned on prior to beginning activity
- Verify cleared area is approximately width of equipment and down to mineral soil
- Pumps turned off after 30 minutes, samples capped, and properly changed out
- Verify sample pump flow rate
- Equipment operator to pull back fire line with pumps off
- Decon personnel to minimize sample cross-contamination

Script 4

HDR will verify the personal ABS samplers are utilizing proper technique and the stationary samplers are properly positioned, calibrated, and operating for this task as outlined in Section 5.0 of the Phase IV-A SAP and Scripts 4a and 4b of Attachment A. Oversight for this task will include:

- Verify correct location using Figure 3-1 or other maps/directions
- Verify field conditions
- Verify USFS personnel onsite

- Proper equipment utilized – water truck, hose, hand tools, etc.
- Position and calibrate stationary samplers based on wind direction
- Light one slash pile to simulate wildfire and let fire generate significant smoke
- Three pumps worn by each ABS sampler – flow rates set at 1 LPM, 2 LPM and 4 LPM
- New filter cassettes installed and pumps properly calibrated
- Stationary and ABS pumps turned on once significant smoke is generated
- ABS samplers move about fire – ALL WIND DIRECTIONS.
- ABS pumps turned off after 30 minutes, samples capped, and properly changed out
- Stationary pumps turned off after 30 minutes, samples secured, and properly changed out
- Verify sample pump flow rate
- Decon equipment to minimize sample cross-contamination
- Decon personnel to minimize sample cross-contamination
- New filter cassettes installed and pumps properly calibrated prior to second event/fire
- Light second slash pile about noon to simulate wildfire and let fire generate significant smoke
- Stationary and ABS pumps turned on once significant smoke is generated
- ABS samplers move about fire – ALL WIND DIRECTIONS
- ABS pumps turned off after 30 minutes, samples capped, and properly changed out
- Verify sample pump flow rate
- Stationary pumps turned off after 30 minutes, samples secured, and properly changed out
- Verify sample pump flow rate
- Decon equipment to minimize sample cross-contamination
- Decon personnel to minimize sample cross-contamination

Script 5a

The procedure for this task as outlined in Section 5.0 of the Phase IV-A SAP and Script 5a of Attachment A. Due to the concurrent Script 4 sampling event and based on conversations with EPA, HDR will not oversee the starting and stopping of this pump or recorded the operational time. As scheduling allows, HDR will accompany MWH or other designated personnel to the airport to oversee pump calibration, sample train setup, and pump availability.

Script 5b and 6

This event is not a planned event. This event will only occur during an authentic wildfire which may be human or naturally caused. This event may or may not occur in the area within a reasonable time frame. HDR will not plan to oversee this event. If such an event occurs, HDR will provide assistance as directed by EPA. Sampling procedures for authentic wildfires were

previously outlined by EPA. These sampling procedures are presented in Attachment D of the Phase IV-A SAP.

Based on conversations with EPA and as scheduling allows, HDR will accompany MWH or other designated personnel to the airport and stationary monitoring locations to oversee pump calibration, sample train setup, and pump availability to verify measures and equipment are in place prior to an actual event.

4.4 Decontamination

HDR will observe equipment and personnel decontamination for the purpose of avoiding sample contamination. HDR will not provide comment on MWH's personnel decontamination in regards to health and safety.

In addition, the Phase IV-A SAP includes language and SOPs for personnel and equipment decontamination. Decontamination procedures include:

- Personnel involved in sampling will don clean PPE prior to beginning a new event
- Decon non-disposable equipment (shovels, chainsaws, trimmers, etc.) according to OU3 SOP 7 in Attachment A of the Phase IV-A SAP
- Decon non-disposable PPE

5.0 DOCUMENTATION AND SHIPPING OBSERVATION

This section describes the approach to be used to perform oversight of the ABS sample documentation and shipping procedures. Documentation activities include both field documentation and sample documentation.

Checklists, titled “Libby OU3 ABS Field Documentation Checklist” and “Libby OU3 ABS Sample Documentation and Handling Checklist”, were prepared to assist HDR field personnel and verify that the appropriate data is collected and procedures are followed. The checklists were developed based on information presented in the Phase IV-A SAP and scripts. The Sample Documentation and Handling Checklist is intended to assist when checking the sample handling, sample labeling, chain of custody, and sample shipping procedures and closely follows OU3 SOP 8. The Field Documentation checklist is intended to assist when checking the field log books and the Field Sample Data Sheets and closely follows OU3 SOP 9. The checklists are presented in Appendix A.

5.1 Field Documentation

The field documentation procedures are outlined in Section 8.0 of the Phase IV-A SAP, as well as the following standard operating procedures: OU3 SOP 8, OU3 SOP 9, and SOP ABS-LIBBY-OU3. According to these documents, field documentation will occur in two locations, both in field log books or on pre-printed forms (i.e. FSDS). All field documentation must be accurate, legible, and written in indelible black or blue ink.

Field Log Books

According to the Phase IV-A SAP, each field sampling team will maintain a bound, field log book. The log book shall record all potentially relevant information of sampling activities and conditions that are not otherwise captured on the FSDS forms. Examples of this information include:

- Names of team members
- Numbered pages
- Project name and date recorded at the top of each page
- Sampling activity
- Current and previous weather conditions
- Equipment calibration
- Field sketches
- Physical description of the location relative to permanent landmarks
- Number and type of samples collected
- Any special circumstances that influenced sample collection

- Any deviations from sampling SOPs
- The location description (what trails and areas) where the ABS activities were performed
- Other personnel onsite

In addition, OU3 SOP 8 states that all sample shipments must be documented in the field log books and/or field forms, including rationales for deviation from the SOP.

HDR will review field log books, in the presence of MWH, either at the completion of a sampling event or the end of the day. HDR will confirm that the data requirements listed above are present in the log book for that ABS event or days activities. HDR will not alter the log books in any way. HDR will record any discrepancies or deficiencies in a separate log book maintained by HDR. HDR will summarize this data in the monthly report to EPA.

Field Sample Data Sheet

The FSDS forms for ABS sampling are presented in SOP ABS-LIBBY-OU3. These forms were designed to be easy to use both in the field and for data entry.

HDR will review the FSDS, in the presence of MWH, either at the completion of a sampling event or the end of the day. HDR will look for the following:

- Sheets completed – including entry and validation initials
- Mistakes crossed out once, initialed, and dated
- Data is consistent with that entered in field log book
 - book number
 - page numbers
 - location
 - activity scenario
 - sample team
 - GPS location
 - flow rate, start and stop times
 - volume calculations
 - cassette lot number – verify the lot has been QC tested and determined to be asbestos free
- All writing is completed in blue or black indelible ink

HDR will not alter the FSDS forms in any way. HDR will record any discrepancies or deficiencies in a log book maintained by HDR. HDR will summarize the data in a monthly report to EPA.

5.2 Sample Documentation and Handling

The sample handling procedures are primarily outlined in OU3 SOP 8 (see Attachment B of the Phase IV-A SAP). Sample documentation procedures are primarily outlined in OU3 SOP 9 (see Attachment B of the Phase IV-A SAP). Additional information for both sample handling and documentation are presented in Section 8.0 of the Phase IV-A SAP and SOP ABS-LIBBY-OU3.

Sample Handling

Samples are to be collected using the procedures outlined in the Phase IV-A SAP and scripts. Sample cassettes must be taken only from cassette lots that have undergone lot blank testing and found to be asbestos free.

Once sampling is complete, the cassette inlets and outlets are to be capped. Sample cassettes should be handled carefully so as not to disturb dust on the filters. Cassettes should be stored with the inlet cap facing up. Samples should be packed with adequate packing material to prevent jostling or damage. No vermiculite or other fibrous material should be utilized for packing material. The shipment packages should include the properly completed chain of custody forms for the samples included within the package. The shipment packages should have custody seals properly placed and located on the package to prevent sample tampering.

HDR will observe sample preparation for the following items:

- Sample cassette lot was blank tested
- Cassette inlets and outlets are capped
- Cassettes placed inlet side up in shipment package
- Cassettes packaged to limit disturbance
- Chain of custody (COC) forms match samples in shipment package
- COC forms included in shipment package
- Custody seals initialed, dated, and present on the shipment package
- All writing is completed in blue or black indelible ink

In addition, HDR will:

- Record any discrepancies or deficiencies in a log book maintained by HDR
- Summarize the data in a monthly report to EPA
- Observe one daily sample packaging and shipment per week while onsite

HDR will not observe the daily entry of the COC form into an electronic database.

Sample Documentation

Sample documentation includes proper sample labeling, custody seals, and chain-of-custody forms. The sample labeling and chain-of-custody procedures are outlined both in the Phase IV-A SAP and the OU3 SOP 9.

HDR will observe the procedures for the following at least once per week while onsite:

- Samples are properly labeled with a unique ID number
- Sample bag ID matches the sample cassette ID
- COC properly documents the following:
 - sample ID
 - collection date and time
 - sample media
 - sample volume
 - number of sample containers
 - requested analysis
 - laboratory destination
 - remarks
 - signatures of relinquishing party
 - mistakes crossed out once, initialed, and dated
- Custody seals are initialed and dated
- Custody seals placed on opposite sides of the container, covering the seams
- All writing is completed in blue or black indelible ink

6.0 QUALITY CONTROL OBSERVATION

Quality control procedures are presented in Section 7.0 of the Phase IV-A SAP and the SOP ABS-LIBBY-OU3. HDR will be observing QC of the field activities only; HDR will not oversee any of the laboratory or data entry QC measures. SOP ABS-LIBBY-OU3 indicates two field QC measures which include lot blanks and field blanks.

6.1 Lot Blanks

To verify sample cassettes are not contaminated prior to sampling, two cassettes from each filter lot should be selected randomly prior to beginning sampling. The lot blanks will be analyzed for asbestos by the same method as used for the field samples to verify that cassettes are free from asbestos contamination. If asbestos is detected in any lot blank, the entire lot should be rejected.

HDR will confirm that sample cassettes are only used if the lot has been blank tested and been determined asbestos free. If lot blank sampling is conducted while HDR is onsite, HDR will verify that the samples are randomly selected within the lot.

6.2 Field Blanks

Field blanks are used to determine if any contamination has occurred during sample handling. Field blank sample cassettes are to be opened in the field and then closed and packaged for shipment and analysis. Field blank locations should be selected at random but should occur at a rate of one blank per ABS event or script, so five field blanks should be conducted over the sampling season.

Based on the field blank sampling frequency, HDR will likely observe various field blank sampling events. HDR will confirm that the sample cassettes are opened and capped similarly to actual sampling events. HDR will confirm that the field blank samples are properly labeled and prepared for shipment.

6.3 Field Duplicates

Due to the use of three pumps per sampler and two samplers per event, no additional field duplicate samples will be collected. HDR will not observe any field duplicate samples.

7.0 REPORTING

According to the scope of work, HDR will prepare one oversight report per month during the time that sampling occurs. The monthly oversight report will detail the sampling oversight activities for which HDR was present, including Phase IV-A and Phase IV-B events. Monthly oversight reports will be submitted to the EPA remedial project manager (RPM) for OU3, Bonita Lavelle, EPA Region 8.

The oversight report will be concise, but will provide adequate descriptions of any deficiencies or discrepancies observed. Report appendices will likely include HDR field notes and pertinent photographs. It is anticipated that monthly oversight reports will not exceed eight pages, excluding appendices. With sampling beginning at the end of June, oversight reports will be compiled for sampling beginning in June and likely terminating in September or October.

In addition to preparing the monthly reports and due to the sampling schedule, HDR will contact the EPA RPM by phone from Libby to discuss sampling discrepancies, if any. The RPM will relay the discrepancies to MWH or others as required in a timely fashion so as to rectify discrepancies early in the procedure. HDR will not relay any observed discrepancies directly to MWH or the samplers.

8.0 REFERENCES

HDR Engineering, Inc. Health and Safety Plan for Libby Asbestos Superfund Site Operable Unit 3 RI/FS Oversight Libby, Montana. June 2010.

MWH Americas, Inc. MWH Health and Safety Plan for Libby Asbestos Superfund Site. September 2007.

U.S. Environmental Protection Agency, Region 8. *Remedial Investigation For Operable Unit 3 Libby Asbestos Superfund Site, Phase IV Sampling and Analysis Data Part A – Data to Support Human Health Risk Assessment.* May 6, 2010.

APPENDIX A – HDR PHASE IV-A OVERSIGHT CHECKLISTS

Libby OU3 ABS Field Sampling Oversight Checklist

HDR Field Personnel Onsite: _____ Date: _____
 ABS Scenario: _____ Location: _____
 Sampling Personnel: _____
 Other Personnel Onsite: _____
 Weather: _____ Day/time of last rain event: _____

Sample Details

Was an ABS event conducted immediately before this event? If so, which one and where?

Sample collected under acceptable weather conditions (i.e. no rain)?

Date of last rotameter calibration

Pump flow verified with rotameter prior to sampling event?

| | |
|--|-------------|
| Filter cassette is new, from an approved box, appropriate size, and labeled? | Lot Number: |
|--|-------------|

Pump train properly set up? Caps removed? Correct air flow direction?

Filters properly located and oriented?

Filter cassette covers and caps stored in a clean location?

Sample equipment used:

| | | |
|---------------------------------|---------------------------------|--------------------------------|
| High volume flow rate _____ LPM | Med. volume flow rate _____ LPM | Low volume flow rate _____ LPM |
|---------------------------------|---------------------------------|--------------------------------|

| | |
|---------------------------|--------------------|
| Starting GPS location (m) | Start sample time: |
|---------------------------|--------------------|

| | | |
|---------------------------------|------------------------------|------------------|
| Time samplers switch positions: | Duration in sample location: | End sample time: |
|---------------------------------|------------------------------|------------------|

| | |
|-------------------------|----------------------|
| Ending GPS location (m) | Total sample length? |
|-------------------------|----------------------|

| | |
|------------------------------------|-----------------------------------|
| Sample volume (high pump): _____ L | Sample volume (low pump): _____ L |
|------------------------------------|-----------------------------------|

Was sample technique adequately performed? Were brush/trees properly disturbed? Describe activity and document with photos, if necessary. _____

| | |
|-----------------------------|---------------------------------|
| Equipment properly decon'd? | Samplers decon'd, if necessary? |
|-----------------------------|---------------------------------|

Will an ABS event be conducted immediately after this event? If so, which one and where?

Was area adequately cleaned up following sampling? Photos, if necessary.

Filter cassettes properly capped, sealed, and stored?

Verify field sampler documents field log book and FSDS.

Number of samples collected, including QC? Describe.

Comments (use of log book is preferred):

Libby OU3 ABS Field Documentation Checklist

HDR Field Personnel Onsite: _____ Date: _____
 ABS Scenario: _____ Location: _____
 Sampling Personnel: _____
 Other Personnel Onsite: _____
 Weather: _____ Day/time of last rain event: _____

Field Log Book

Does each sampling team have a log book onsite?
 Are log book notes consistent with sampling activities?
 Are notes legible and written in black or blue indelible ink?
 Are pages numbered, team members name, and project name and date recorded?
 Are equipment calibration techniques/problems noted?
 Are field sketches present, legible, and accurate/oriented?
 Are physical sample locations described?
 Are the sample number and type noted?
 Are there any special circumstances noted?
 Are there any deviations from the SOPs?
 Are all onsite personnel noted?
 Are sample shipments documented in the log book?
 Are mistakes properly crossed out, initialed and dated?

Field Sample Data Sheets (FSDS)

Is the sheet complete? Are the sample label IDs attached?
 Are notes legible and written in black or blue indelible ink?
 Is data consistent with log book?

| | |
|--|---|
| Is the field log book number recorded/correct? | Are log book page numbers recorded/correct? |
| Is sample location recorded/correct? | Is the ABS activity recorded/correct? |
| Is the sample team recorded/correct? | Is the GPS location recorded/correct? |

Are the flow rate and pump start/stop times recorded/correct?
 Are the volume calculations correct?
 Have the cassette lots been blank tested and verified asbestos free? Which lot?
 Are mistakes properly crossed out, initialed and dated?
 Was the FSDS data validated by second sample team member?

Libby OU3 ABS Sample Documentation and Handling Checklist

HDR Field Personnel Onsite: _____ Date: _____

ABS Scenario: _____ Location: _____

Sampling Personnel: _____

Other Personnel Onsite: _____
 Weather: _____ Day/time of last rain event: _____

Weather: _____ Day/time of last rain event: _____

Sample Handling

Was the sample cassette from a lot that has been blank tested? Which lot?

Were samples handled carefully during sampling and prior to packaging?

Are sample cassette inlets and outlets capped?

Is black or blue indelible ink used?

Are sample cassettes properly placed (inlet side up) in the shipment package?

Are cassettes packaged to limit disturbance?

| | |
|--|---|
| Do the sample IDs on COC match shipment? | Are the COC forms included in the shipment? |
|--|---|

| | |
|--|---|
| Do the sample IDs on COC match shipment? | Are the COC forms included in the shipment? |
|--|---|

| | |
|---|--|
| <p>Are custody seals initialed, dated, and present on the shipment package?</p> | |
|---|--|

Are mistakes properly crossed out, initialed and dated?

Sample Documentation

| Sample Documentation | |
|---|--|
| Are samples properly labeled with a unique ID number? | |

Are samples properly labeled with a unique ID number?

Does sample have ID that matches the sample cassette ID?

Do sample bag IDs match the sample cassette ID?

| | | | | |
|--------------------------------------|---------|---------|---------|---------|
| Is black or blue indelible ink used? | | | | |
| 1-1-000 | 1-1-000 | 1-1-000 | 1-1-000 | 1-1-000 |

| | | | | |
|--------------------------------------|---------|---------|---------|---------|
| Is black or blue indelible ink used? | | | | |
| 1-1-000 | 1-1-000 | 1-1-000 | 1-1-000 | 1-1-000 |

| | |
|--|---|
| Is the COC sample ID recorded/correct? | Is the COC sample date and time recorded/correct? |
| | |

| | |
|--|---|
| Is the COC sample ID recorded/correct? | Is the COC sample date and time recorded/correct? |
| | |

| | |
|---|--|
| Is the COC sample media recorded/correct? | Is the COC sample volume recorded/correct? |
|---|--|

Is the sample quantity on the COC recorded/correct?

Is the sample quantity on the COC recorded/correct?

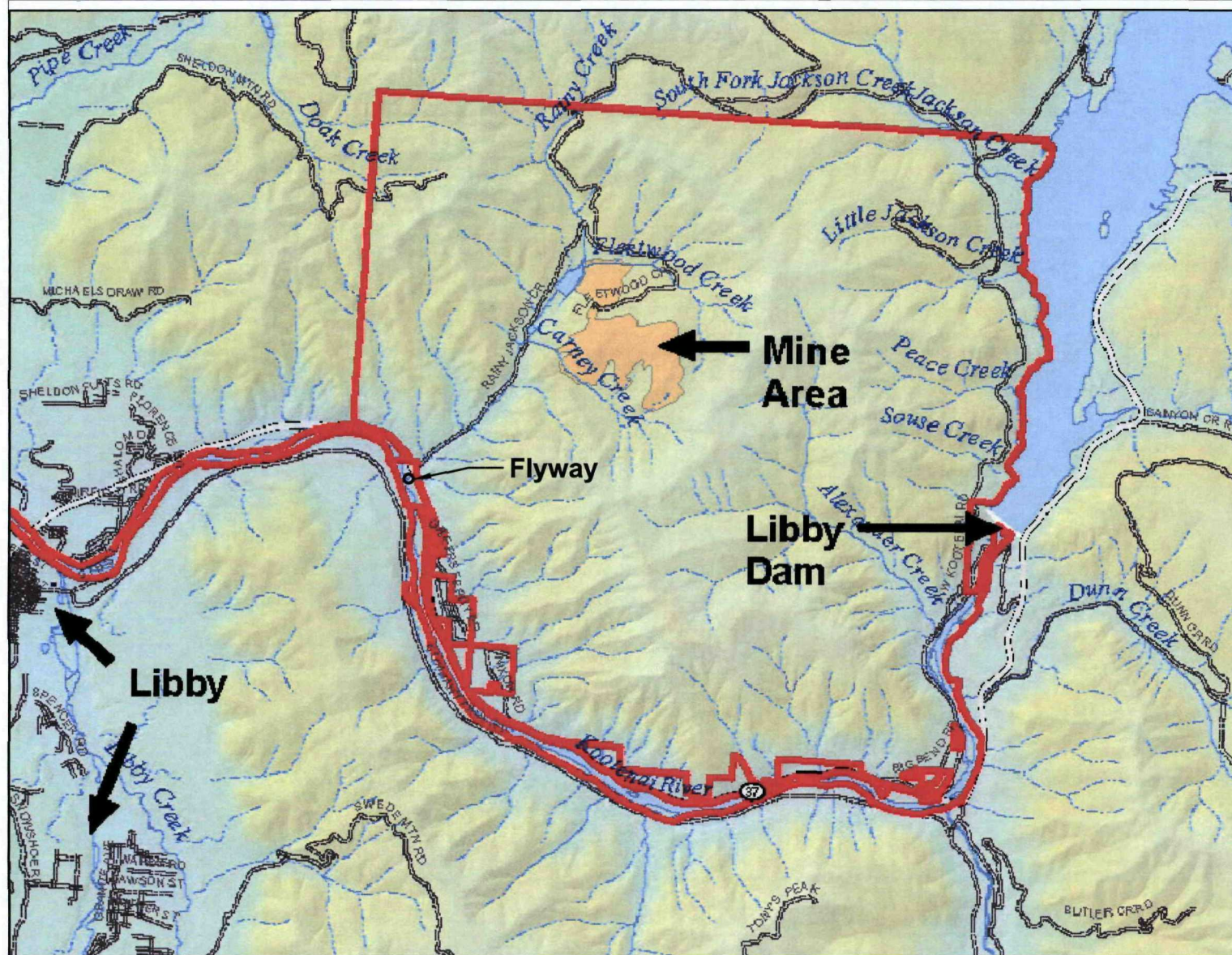
| | |
|--|---|
| Is the requested sample analysis recorded/correct? | Is the laboratory destination recorded/correct? |
|--|---|

Is the COC signed by the relinquishing party?

Are mistakes properly crossed out, initialed and dated?

Are custody seals initialed, dated, and properly placed on the shipment package?

Comments (use of log book is preferred):



Legend

- Operable Unit 3
- County Road
- Primary Road
- Open Water
- Perennial Stream
- Intermittent Stream
- Mined Area



0 1 2
MILES

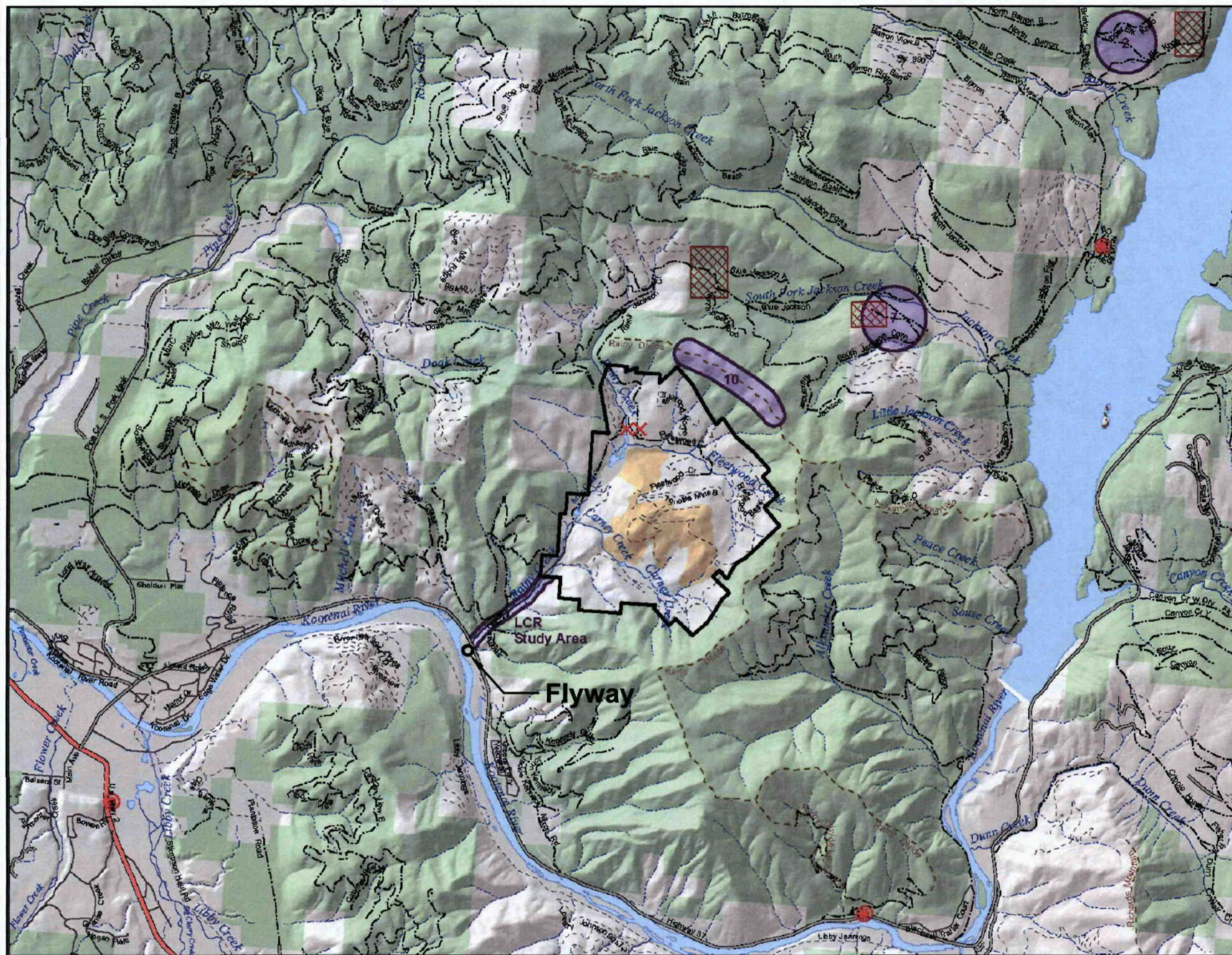
Map Courtesy of Draft Phase 4
SAP Part A, Figure 2-1

Vicinity Map

HDR

DATE
June 2010

FIGURE
2-1



Legend

- U.S.
- State
- County
- - - Forest Service
- - - P - PRIVATE
- - - USFS Trails (Libby District)
- ▭ Kootenai Development Company
- ▭ ABS Target Area
- ▭ Open Water
- - - Water Diversion
- Perennial Stream
- - - Intermittent Stream
- ▭ Mine Disturbance
- ▭ ownership
- XX Slash Piles
- Stationary Air Monitor
- ▨ Heavy Equipment Activity Area



0 6,000 12,000
FEET

Map Courtesy of Draft Phase 4
SAP part A, Figure 4-2

ABS Sample Areas

HDR

DATE
June 2010

FIGURE
3-1